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Report to Congress - Industrial Cost Recovery Supplemental Analysis and Recommendations

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Report to Congress
Industrial Cost Recovery

Supplemental Analysis and Recommendations

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16. ABSTRACT

This document presents the U.S. Environmental Protection Agency's (EPA) supplemental report to the Congress on its Industril Cost Recovery (ICR) Study as directed by the Congress in Section 75 of Public Law 95-217, the Clean Water Act of 1977. This provision of the statute requires EPA to study the "efficiency of, and need for" the repayment by industry of that portion of the EPA grant used for construction of industrial capacity of publicly-owned wastewater treatment systems (POTW's). This document presents evidence concerning the relative efficiencies of the ICR systems of various grantees, and the construction and operational burdens imposed on grantees by industrial users. This document also transmits specific recommendations to the Congress for improving the efficiency of the ICR program.

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REPORT TO CONGRESS

INDUSTRIAL COST RECOVERY

SUPPLEMENTAL ANALYSIS AND RECOMMENDATIONS

Executive Summary

Congress in the 1972 Federal Water Pollution Control Act established water pollution control requirements for both industry and municipalities. A Federal grant program was established to provide municipalities with 75 percent of the capital costs for constructing or upgrading municipal sewage treatment systems. Congress did not establish a similar grant program for industry. Industry was encouraged to use municipal treatment systems, provided half the Federal costs for constructing industrial capacity was returned by industry to the Federal Government. Congress directed municipal grantees to collect 100 percent of Federal costs for constructing industrial treatment capacity from their industrial users and retain 50 percent for treatment system improvements.

The industrial cost recovery (ICR) program was established by Congress primarily to avoid providing some segments of industry with a Federal subsidy. Congress expected costs for meeting national pollution control objectives would be internalized by businesses and treated as a normal operating expense. The ICR requirements recognized that industrial facilities would be provided with an unsecured interest-free loan, repayable over a 30 year period, by recovering costs from those industries that decided to use municipal treatment systems instead of using limited capital to construct self-treatment systems.

In 1977, Congress revised the nation's water pollution control program. The Clean Water Act Amendments slightly modified the ICR program. Congress excluded small industrial facilities discharging 25,000 gallons a day or less from cost recovery requirements. Congress recognized these small dischargers impose an insignificant burden on municipal treatment systems. Congress also approved administrative changes expected to provide industry with an incentive to reduce flows and pollutant discharges to public treatment systems. A moratorium on recovering funds from industry also was established, and Congress directed the Environmental Protection Agency (EPA) to report on the need for and efficiency of the ICR program.

Based on a previous report to Congress and a supplemental analysis of the ICR program, EPA concludes that the construction grants program provides a subsidy to industrial users of municipal treatment systems. The extent of the subsidy cannot be accurately estimated, nor can benefits to industry be quantified on a national basis. Each case must be reviewed individually. Conclusions must be based on an analysis of industrial capitalization, waste characteristics, the age of production facilities, and direct discharge treatment requirements. One general conclusion that can be made is industry receives an unsecured interest-free loan, faces no obligation to repay construction costs if municipal treatment system use is discontinued, and is relieved of direct costs for treatment system operation, discharge permit compliance, and sludge disposal requirements.

EPA also concludes that in some instances industry can construct self-treatment facilities for less than it costs to use municipal treatment systems. Although this is not true in all cases, in some areas of the country new industrial facilities can be designed and constructed to minimize water use by utilizing new manufacturing and treatment technology. Self-treatment can be the most cost-effective option for these industrial facilities. EPA is convinced that where self-treatment is cost-effective, industry, unless confined within an urban area, will not use a municipal treatment system.

EPA's ICR review shows the program is expensive to administer for some grantees. In those cases where a grantee has numerous small industrial dischargers, more costs may be incurred by administering the program than are collected from industry. Although not universally true, this appears to be correct in some cases. ICR administrative costs may exceed the 50 percent share of ICR revenues retained by grantees for treatment system improvements. In other cases, however, ICR returns significant revenues that are needed and utilized by grantees.

EPA recommends Congress allow the ICR program to go into effect once the current moratorium has expired. Elimination of cost recovery requirements would be unfair to grantees in need of ICR revenues to finance treatment system improvements, and elimination would be unfair to those businesses that have made the financial commitment and constructed self-treatment facilities. Elimination of ICR would provide industry with a positive incentive to use municipal pollution abatement facilities, but in some cases self-treatment and utilization of cost-effective industrial treatment technologies would result in a net savings to the economy. Industry should not be encouraged to utilize municipal treatment facilities if self-treatment is most cost-effective.

EPA also suggests modifications to the ICR program for consideration by Congress which would make the revenue system more valuable and less burdensome to grantees.

1) The agency, based on a sample of industrial dischargers and grantees, has determined the current 25,000 gallons per day flow exclusion may be increased to 50,000 gallons per day without significantly decreasing amounts recovered from industry. The number of industrial facilities paying into the system would be significantly reduced, thus minimizing paper-work and recordkeeping requirements for grantees.

2) Congress also should consider exempting grantees from Federal ICR requirements if a grantee can demonstrate the system is too expensive to administer and a local program is in place that efficiently accomplishes the objectives established by Congress. An adequate system should recoup construction costs from industry without shifting industry's costs to other users.

3) The agency also suggests Congress consider providing grantees with Federal funds only to abate residential pollution. Use of municipal treatment systems by industry should not be discouraged, but flexibility in the construction grants program would enable industry and grantees to negotiate joint treatment needs and find private financing for industrial capacity.

4) EPA recommends that in all instances where industrial treatment capacity is constructed with Federal funds, industry be required to sign a binding contract with the grantee, specifying the length of time industry intends to use the municipal treatment system and establishing industry's obligation to pay for capacity constructed for industrial use. This provision would guarantee grantees have sufficient revenues to maintain and improve their treatment systems in those instances where industry withdraws its use and leaves grantees with considerable fixed long term costs that otherwise must be passed on to other users.

5) Congress may also wish to consider the option of charging interest -- at the prevailing rate paid on Federal securities -- on "loans" provided to industry for treatment capacity.

This report was prepared for Congress by the Environmental Protection Agency (EPA) to supplement the agency's previous "Report to Congress, Industrial Cost Recovery," submitted January 25, 1979, under directive from Congress in the 1977 Clean Water Act Amendments. The 1979 report arrays some of the issues associated with industrial cost recovery (ICR) requirements in EPA's sewage treatment construction grants program, but it does not adequately explain whether the existing ICR program achieves its legislative objectives and fails to provide Congress with the background needed to determine if the moratorium on ICR should be ended or whether the program should be abolished.

EPA's 1979 ICR report, prepared by Coopers & Lybrand under contract, was based on an erroneous interpretation of what Congress expected to result from establishment of an ICR program and therefore conclusions reached in that report do not provide an adequate basis for making informed decisions. Although Coopers & Lybrand did review the existing ICR program, their analysis took place during the Congressional moratorium on ICR collections and was based on uncertain and incomplete data.

The contractor was provided with inadequate guidance by the agency. As a result, the comparison of industrial and municipal treatment costs failed to reflect differing treatment requirements which would be imposed on self-treating industrial discharges into effluent limited streams. Moreover, the contractor failed to assess to what degree municipal treatment system costs, both fixed and variable, increase primarily to accommodate industrial participants. (The absence of these and other considerations results in an unfair comparison of treatment costs.)

EPA's contractor also based its conclusion on an inadequate application of basic economic and business investment principles. The reluctance of corporations reviewed by the contractor to disclose production and profit data and site specific data on requirements for self-treatment facilities impaired the contractor's ability to accurately analyze costs for self-treatment. The contractor did not address the issue of costs for retrofitting aging industrial facilities, nor did the analysis address the issue of changing technology which, when applied to new industrial development programs, can lead to lower production costs (including treatment) for direct discharge industrial facilities.

Generally, the contractor's conclusions were based on a sampling of approved ICR programs. The contractor was unable in many cases to accurately distinguish between ICR charges and user charges. The contractor did not determine how these production costs are treated in corporate accounts, and how the charges actually relate to corporate profits. The contractor's attempt to determine how sewage treatment costs affect business behavior did not recognize that Congress, when writing environmental legislation, expected compliance costs would be internalized as a cost of production by both direct dischargers and users of municipal treatment facilities. The contractor's economic analysis treated these costs as a tax, and assumed the tax is applied directly to corporate profits. EPA disagrees with this assumption and other assumptions used as the basis for the contractor's analysis.

The agency's contractor also based its conclusions on the assumption that ICR was established to create parity in costs for compliance with water pollution

control requirements between industrial users of publicly owned treatment works (POTWs) and industrial facilities using corporately-owned treatment systems. In fact, this assumption does not appear supportable. EPA's review of the legislative history leading to enactment of the ICR program indicates that ICR was established to assure the Federal Government did not subsidize water pollution control programs for one class of industrial facility--users of POTWs--while requiring corporate capital outlays from self-treating industrial facilities. This conclusion, based on a review of the appropriate legislative history, forms the basis by which EPA judges the effectiveness of the ICR program and provides the background used to formulate the agency's conclusions and recommendations to Congress.

Definitions

In this report EPA relies on terminology and sewage treatment construction grant program requirements that are subject to different interpretations. Program terminology and requirements as used in this report are defined as follows:

Parity: The quality or state of being equal. Parity is a comparative indicator generally regarded to mean equalization of costs. In the national water pollution control program, parity is achieved if abatement requirements for each class of industrial discharger are equal. Water pollution control is but one of many production costs faced by businesses. Parity in abatement program costs among various industrial dischargers depends on direct capital costs and indirect costs to businesses, including investment opportunities forgone and alternative corporate capitalization and investment programs.

Subsidy: A grant or gift of money such as a grant by a government to a private person or company to assist in accomplishing an enterprise deemed advantageous to the public.

Cash Flow: A measure of corporate worth that consists of net income after taxes plus certain noncash charges against income (as allowances for depreciation).

Debt: An obligation. For investment purposes an indicator of profitability as measured by corporate debt/equity ratios related to cash flow. Corporate debt can be spread over the long term (30 years) or short term, generally one year or less.

Based on its review of the existing ICR program, EPA concludes that ICR, as intended by Congress, is a viable program if allowed to go into place. The ICR program could be modified to more effectively accomplish the purposes originally set by Congress or changed to accomplish different objectives. In this report the agency has included a number of options for consideration by Congress.

This supplemental report, like the report prepared by the agency's ICR contractor, is based on a review of existing information on the development of municipal ICR systems. Projections of the amount of ICR collections are only estimates. Until the ICR program is put into place there is no way to determine the actual industrial use of municipal treatment facilities. The moratorium, and uncertainty regarding the future of ICR, has left corporate planners with an unknown production cost factor which must be identified before a business decision on how to treat wastes and

finance ongoing operations can be made. Until the fate of ICR is decided, corporations will be unable to determine whether they will have to pay construction costs for capacity in a POTW and therefore will be unable to compare the full stream of cost and benefits associated with using a municipal treatment system with alternative opportunity costs associated with using limited corporate capital and bonding capacity for constructing self-treatment facilities.

The primary issues addressed in this supplemental report are:

- Why did Congress establish the ICR program in the 1972 Federal Water Pollution Control Act, and was Congressional intent modified by the 1977 Clean Water Act Amendments?
- Does the current ICR program accomplish the purposes expressed by Congress, and is there reason to eliminate or modify ICR requirements?
- Would changes in the ICR provisions assist in establishing efficient and responsible revenue programs at the local level that provide adequate assurance the pollution control objectives set forth in the Clean Water Act are met and municipalities remain, over the long term, in compliance with national pollution control requirements?

ICR: Legislative History

The 1972 Federal Water Pollution Control Act imposes substantial technology-based pollution control requirements on both industry and municipalities. A Federal grant program was established to assist municipalities in constructing new or upgraded treatment facilities, but Congress expected industry would internalize pollution control as a normal operations cost and finance compliance programs through corporate debt vehicles and profits generated by production processes that cause water pollution.

Congress, in the Water Act, provided industry with an option for complying with national water pollution control requirements: self-treatment of their waste streams or use of a municipal treatment system. Congress mandated that all industry, regardless of whether compliance programs are based on use of a municipal treatment facility or self-treatment facilities, must comply with requirements for controlling conventional and toxic pollutants, but Congress left the business decision on how to treat waste up to industry.

Although Congress adopted changes to the tax code to minimize the economic impact of a major national pollution control effort for self-treating industrial facilities, industrial use of municipal facilities was encouraged to minimize overall costs to the economy and the monitoring burden associated with numerous industrial treatment facilities. Congress said, however, in those instances where industry decides to use a municipal treatment system, industry would have to repay the Federal Government for treatment capacity provided by a grantee under EPA's sewage treatment construction grants program. In other words, Congress made it clear that the Federal expenditure for assisting municipalities to come into compliance with the Act was not to unwittingly serve as a subsidy to industrial compliance.

The repayment requirement established by Congress, known as ICR, is authorized by Section 204(b)(1)(B) of the 1972 Federal Water Pollution Control Act. Municipalities using Federal funds to construct, expand, or upgrade a POTW are required to develop an ICR program designed to recover that portion of the Federal grant used to construct treatment capacity for industrial use. The ICR provision requires industrial users of POTWs to repay, generally over a 30 year period, their proportionate share of treatment system construction costs.

ICR is, in effect, a long term, interest-free Federal loan program that finances industrial compliance with water pollution control requirements. Industries, without contractual obligation, are required to repay the Federal Government for treatment capacity requested for an industrial production facility. Municipalities are required to establish an ICR charge for each significant industrial source using the POTW, collect ICR payments yearly, and pay the U.S. Treasury 50 percent of the amount collected. Congress specified that half of the ICR payments should be retained by local governments to defray ICR administrative costs and to provide revenues for improving municipal treatment services.

ICR Objectives

Congress, in 1972, clearly identified two primary objectives expected to be served by establishment of the ICR program. First, ICR would impose a construction cost on industrial facilities that chose to use a POTW. Although the municipal construction grants program would provide unsecured interest-free loans to industry for compliance with water pollution control requirements, ICR payments assured the Federal Government would not be entirely subsidizing compliance for those industrial facilities that chose to use municipal treatment systems instead of constructing corporately owned treatment facilities. Congress reasoned ICR would make compliance costs more equitable among all industrial facilities--both self-treaters and users of municipal treatment systems--because without the ICR charge, industrial users of POTWs would have lower total production costs than their direct discharge counterparts. Without ICR, users of POTWs would enjoy an investment capital advantage, and therefore a competitive advantage, over their competitors that use a portion of their debt capacity and internally generated capital for self-treatment facilities. The absence of a treatment system construction cost liability would enhance the cash flow of users of municipal treatment facilities and enable them to direct limited working capital and bonding capacity toward investments in productive capacity. Competitors constructing their own treatment systems would not have this process-investment option, and Congress concluded it would be unfair to give a waste treatment cost advantage to one class of industry and not another.

The second objective expected to be served by ICR was the establishment of a revenue system. Congress expected ICR collections would be adequate to repay the Federal Government for financing industrial participation in local sewage treatment systems, but total reimbursement by grantees was not considered of prime importance. In establishing the ICR program, Congress required that only 50 percent of the amount collected yearly from each industrial user of municipal treatment systems should be returned to the Federal Government. The remaining 50 percent should be retained by grantees and used to offset ICR administrative costs and help finance treatment system expansion or reconstruction.

The legislative history leading to enactment of the 1972 Federal Water Pollution Control Act directly supports the objectives outlined above for the ICR program. For example, the House of Representatives report (HR 92-111) accompanying that chamber's version of the 1972 Water Act (HR-11896) sets forth the following rationale in support of ICR:

> "In connection with industrial users of publicly owned systems, the Committee desired to establish within the user charge system an arrangement whereby industrial users would pay charges sufficient to bear their fair portion of all costs including the share of Federal contributions for capital construction attributable to that part of the cost of constructed facilities attributable to use by industrial sources. It is the Committee's view that it is inappropriate in a large Federal grant program providing a high percentage of construction funds to subsidize industrial users from funds provided by the taxpayers at large.* Accordingly, the bill imposes an obligation on the part of publicly owned systems to incorporate into their user charge schedule a component to recover, without interest, that portion of the total Federal grant to the community for construction purposes attributable to industrial users. The committee recognizes that there will be some administrative difficulties involved in establishing classes of industrial users and has left to the local system the obligation to set up an effective and equitable system, subject to the approval of the Administrator, inasmuch as the establishment of such a system is a precondition to Federal grants." (Leg. Hist., p. 788).

In the Senate Report accompaning S.2770 (S. Rep. No. 92-4141), the Senate in terms quite similar to those of the House said the following:

> "The committee devoted a great deal of attention to the difficult issue posed by the discharge of industrial pollutants into publicly owned treatment systems. There is much to be said for encouraging industrial use of public facilities. Each industrial discharge into a public system is one less outfall that must be monitored, and in many cases the economics of scale that characterize public treatment works would permit a net capital saving to the economy as a whole, assuming that the alternative to industrial use of public facilities is the on-site treatment by industry of its own wastes.
>
> "The bill would deal with industrial pollutants in this way: each industrial user of a public system would pay a charge that would include not only that share of operating and maintenance costs allocable to such user but which would also be sufficient to recover that portion of the Federal share of the capital cost of the facility allocable to such user. That portion of the Federal share of the capital cost allocable to each industrial user would be returned to the Federal treasury.

* underscoring added

"The committee believes that this approach to the issue of industrial use of public facilities appeared to the committee to be the most reasonable and equitable one that can be devised. Any scheme that did not provide for full recovery of the Federal share of capital costs allocable to industrial users would clearly constitute a federal subsidy of private industry and, more particularly, of those facilities and industries producing wastes that are compatible with public treatment systems. Any other approach would discriminate unfairly against those industries which for whatever reason, were unable to utilize public systems.*

"It may be that Congress will, at some future time, determine that some form of Federal financial assistance to industry in meeting pollution control costs--whether through tax relief, loans, or grants is appropriate. The committee does not prejudge the propriety or need for such assistance. But the committee does conclude that subsidy of private industry through the waste treatment grants program would be haphazard and inappropriate."* (Leg. Hist., p. 1446-1447).

The primary objective of the ICR program expressed in both the House and Senate Reports is not to subsidize industrial treatment costs. The Congress clearly considered the issue of equitable treatment of those supplying the funds for the Federal grants program--the taxpayers at large, both residential and industrial--and those benefiting from the grants program in the residential and industrial sectors of the economy. But to allow private industry to have wastewater treatment without capital expenditure was considered by both Congressional bodies to be unfair and unreasonable. Congress, as a whole, was not willing in 1972 to subsidize private industry treatment costs. The Senate also felt any approach other than the proposed ICR program would discriminate against those industries who did not discharge into municipal treatment systems and instead, for a variety of reasons, used corporate capital to construct self-treatment facilities.

ICR Amendment Rejected

While there was no serious question raised about section 204(b)(1)(B) during the Senate debates, the House with language nearly identical to the bill which passed, considered but rejected an amendment to strike section 204(b)(1)(B) from the bill.

During the House debate, Congressman McDonald from Michigan prior to offering his amendment said of section 204(b)(1)(B): "I felt it is a grave inequity for the bill to single out industry as the only user also responsible for capital costs." (Leg. Hist., p. 406). The next day Congressman McDonald offered an amendment to strike section 204(b)(1)(B) from the House bill. In support of his amendment he said:

"While I am a firm believer in the concept of user charge for the purpose of maintenance and operation, I feel it is a grave inequity for the bill to single out industry as the one user also responsible for the capital costs. This inequity will surely be destructive as far as development of hoped for regional concepts in water pollution control is concerned.

* underscoring added

"Revenue must be generated from users on a proportionate basis that will take care of the maintenance, operation, and expansion. To charge industry a fee beyond that of user charges, however, is unfair. Businesses, like individuals, are taxpayers and deserve the benefit from Federal grant programs as do other taxpayers. It is clearly unjust and inequitable to require reimbursement from industry while not requiring reimbursement from other users.

"What is necessary today to correct our water pollution problem is a massive, cooperative effort on the part of every individual and corporate entity. Any legislation which has as its intent a solution to this highly complex problem must assign the responsibility equally between those who are creating the problem.

"If this bill is to be just either we make all users pay part of the investment costs, or we release all users from such charges." (Leg. Hist., p. 557-558).

There was considerable debate on this amendment, but it was defeated soundly by a vote of 336-66. Some significant passages from the statements of those House members who opposed the amendment serve to outline why the amendment was defeated.

Congresswoman Abzug, who prior to the amendment had spoken in support of the House bill (Leg. Hist., p. 371), said of the amendment:

"...as I understand it, the gentleman objects to the industrial user being charged their fair portion of construction costs. I oppose the amendment because the fact is in a large Federal grant program which has a high percentage of construction funds, that it would be unfair to expect the taxpayer to subsidize the industrial user. I am quite surprised at the gentlemen's amendment, because the fact is the industrial user is being given the opportunity to participate in a municipal plant based on a user charge schedule and on the users proportional share of financing construction costs without interest rates. If the industrial user would have to construct his own plant he would have to find the money and then pay interest, and large interest rates, and he would find it could not be done on an economic scale that would make it cheaper. Mr. Chairman, I oppose the amendment. As a member of the committee I can tell you that I thought we should include interest charges to industrial users, but the committee in its wisdom overruled me." (Leg. Hist., p. 560).

Congressman Seiberling said:

"I must say when I read the gentleman's "colleague" letter on this it had a certain appeal because it implied industrial users were going to be charged twice. However, users would be charged for maintenance and operation of treatment facilities but not for amortization of capital costs. This strikes me as being an unsound principle...
Industrial polluters should not be placed in a position to require that local taxpayers subsidize a part of the capital cost of eliminating the pollution generated by industry as the price for obtaining Federal assistance under this section." (Leg. Hist., p. 560).

Congressman Grover believed industry should pay its fair share. He said:

> "In establishing this user charge system, our desire is that industrial users pay a fair portion of costs, including capital costs, attributable to their use of waste treatment facilities. This is a Federal grant program. The Federal Government is providing a major percentage of construction costs. It is certainly not intended that a construction subsidy by the taxpayers be made to industrial users." (Leg. Hist., p. 565).

Congressman Wright added a different perspective to the debate when he stated:

> "Mr. Chairman, I can both appreciate and understand the apprehensions expressed by the sponsors of this amendment. We have to strike a balance between the demands of ecology and the demands of the economy. But I really believe the provisions contained in the House bill would not do the violence that they fear.
>
> "It seems clear to me that we provide only that which the majority of the people desire, and that is if an industrial polluter imposes by reason of his discharge a certain burden upon the municipal treatment plant that he pay a fair share of the cost, a share that would have some relation to the volume of discharge that he puts into that plant." (Leg. Hist., p. 567-568).

Section 204(b) was amended during conference, but the revision dealt with a grantee's use of funds collected from industrial users and set forth Congress' intent to use ICR as a revenue program providing grantees with funds for future treatment system expansion and reconstruction. (Leg. Hist., p. 295).

The revenue system objective for ICR was agreed to by House and Senate conferees participating in the Water Act conference. The conference report explains (Leg. Hist., p. 295) the ICR provision agreed to in 1972:

> "...is basically the same as the Senate bill as revised by the House amendment with the following changes:
>
> (1) The requirement that users pay for the cost of future expansion of waste treatment services has been stricken.
>
> (2) The requirement that revenues derived from payment of cost by industrial users be retained by the grantee for use for operation, maintenance, expansion, and construction of publicly-owned treatment works has been stricken and in place of it there has been substituted a requirement that the grantee shall retain an amount of the revenues derived from payment of cost by industrial users, to the extent costs are attributable to the Federal share of the project costs, equal to (A) the amount of the non-Federal cost of the project,

paid by the grantee plus (B) the amount, necessary for future expansion and reconstruction of the project, except that such amount shall not exceed 50 per centum of such revenues from such projects. All revenues not retained by the grantee are to be deposited in the Treasury as miscellaneous receipts. That portion of the revenues retained by the grantee attributable to clause (B) together with any interest thereon must be used solely for expansion and reconstruction."

1977 Water Act Amendments

In 1977 Congress amended the Federal Water Pollution Control Act, approving several significant changes to the municipal sewage treatment construction grants program and establishing a moratorium on collection of ICR payments. The moratorium itself had minimum impact in terms of halting returns to the U.S. Treasury because few treatment systems required to have ICR programs in place had completed construction and were actually collecting ICR payments.

Generally, in 1977 Congress clarified legislation governing the ICR and user charge requirements. Congress again stated that all users of municipal treatment systems should pay their proportionate share of costs for operation and maintenance. Congress elaborated on the "proportionality" provision by establishing general guidelines for user charge rates wherein both residential and industrial users should be assessed user fees that take into account the volume, or flow, sent to the treatment system and the quality or strength of wastes. Congress established that each class of users should pay fees based on the treatment demand its wastes impose on a treatment system. Pretreatment requirements were clarified to assure industrial discharges do not impose special treatment or sludge disposal requirements on a municipality.

In 1977 Congress approved three significant amendments to the ICR program in addition to establishing a moratorium on ICR collections. Prior to conference on the 1977 amendments, some grantees reported that administering the ICR program was too costly because of the large number of industrial facilities using municipal treatment systems. The grantees suggested that Congress reduce the administrative burden by exempting some industrial dischargers from the ICR program, and an agreement was reached by the Congressional conference committee.

First, Congress modified the ICR requirements to exempt from payback requirements those industrial facilities discharging less than 25,000 gallons per day of wastes having strength equivalent to domestic wastes. Although Congress expressed uncertainty concerning the adequency of the exemption, conferees generally agreed the 25,000 gallon per day "equivalent sanitary waste" exemption would exclude a large number of small, sometimes marginal firms, that individually do not significantly contribute to increases in treatment system design requirements or construction costs but collectively might constitute a major administrative burden for grantees.

The other two significant changes to the ICR program approved by Congress in 1977 were intended to provide administrative flexibility to grantees and an incentive for industry. Congress expected these changes to result in water conservation and less industrial demand for municipal treatment capacity.

Congress recognized that ICR posed administrative burdens for regional municipal treatment agencies that have multiplant systems with geographically dispersed industrial participants. The problem expressed by municipalities was that in instances where a single plant needed improvements, ICR imposed costs on industrial users of that one plant but not on industrial users of other plants within the same system. Plant-by-plant applications of ICR within a multiplant system were considered unfair in instances where only a single plant within a system was being upgraded, because all industrial users of the system were provided with treatment services. The plant-by-plant application of ICR would result in higher cost for some users of a multiplant system, simply because of their location within the system. Moreover, establishing an ICR rate for each plant upgraded within a multiplant system required the establishment of separate accounts for each treatment plant. The second amendment eased the administrative burden by permitting grantees to establish one ICR rate applicable to all industrial users within a multiplant system. In this way industrial users would pay their share of costs for improvements that benefit the treatment system.

The final significant change to the ICR program approved by Congress in 1977 encouraged industrial users of municipal treatment facilities to adopt process changes that would reduce water consumption and waste discharges. Incentives for water conservation were stressed in several amendments to the Water Act, and Congress expected that encouraging water conservation through the ICR program would lessen water use and lessen demand by industry for municipal treatment capacity. The change agreed to by Congress permitted municipalities to reduce ICR charges to a specific industrial discharger if the discharger adopts a permanent process change that results in reduced flows or pollutant loadings sent to the municipal treatment system.

Congress in 1977 also established the first of two moratoria on the collection of ICR payments from industry. Although Congress specified that grantees should continue to develop ICR systems during this moratorium, EPA was told to review the ICR program, determine the need for and efficiency of existing ICR requirements, and report back to Congress. Congress directed EPA to include recommendations in the agency's report for improving the ICR program if the agency determined changes were needed.

Congress estabished the moratorium on ICR collections for several reasons. Grantees reported that administering the ICR program was burdensome, and some said their administrative costs would, over the 30 year payback period, exceed their 50 percent share of the ICR revenues collected from industry. Industry also objected to the ICR program, maintaining ICR constitutes "double taxation" and unfairly singles out industry as the sole user of municipal treatment systems required to repay the Federal Government for sewage treatment construction grants. Industry also alleged that ICR does not result in treatment cost parity because the combined effect of ICR, user charges, and future pretreatment requirements make it more expensive for an industry to use a municipal treatment facility than it would be to construct and use corporately owned treatment facilities.

An Industry Subsidy

In some instances use of a municipal facility is essential if a firm is to continue operating. For example, marginal firms often cannot borrow money in the capital markets (e.g., banks, insurance companies, bonds, stock) for non-productive investments, nor do they, in general, have enough internally generated funds to build self-treatment plants. Even if investors were willing to invest in marginally profitable enterprises, interest rates would be prohibitively high. In addition, firms with little or no room for expansion are compelled to use municipal treatment facilities. This is an obvious condition of many urban plants which must be near supplies, labor, and markets.

The sewage treatment construction grants program subsidizes profitable firms also (particularly smaller firms with low tax rates), allowing them to enjoy cash flow benefits that would be lost if they had to construct self-treatment facilities. Imposition of ICR does not impair the financial viability of these firms; rather, the use of municipal treatment facilities without ICR gives these profitable firms an advantage over their competitors that construct direct discharge facilities. These financially viable firms thus are having one step in their manufacturing process subsidized by residential taxpayers who, unlike investors, receive little or no benefit in return.

EPA's review of the ICR program also shows the existing ICR requirements could effectively negate most of the subsidy now provided to some segments of industry, if the moratorium were lifted.

Currently, because of the moratorium on ICR collections, municipalities are uncertain whether Congress will eliminate ICR requirements or modify the program. Many municipalities are not developing ICR programs, and many industrial facilities are postponing decisions whether they will use municipal treatment systems or construct corporately owned treatment facilities.

Industries now are able to calculate their costs for constructing and operating their own treatment facilities. This is a plant-by-plant business decision based on specific cash-flow and process-related considerations. The major variables in projecting the self-treatment costs are the cost of money in the corporate bond market and future production (or capacity) requirements. Before an industry decides to use a municipal facility, it must know what its costs will be for ICR and user charges, determine what may be required to comply with future direct or indirect discharge treatment and sludge disposal programs, balance those costs against self-treatment and sludge disposal costs, and select the alternative that is more efficient and advantageous to the corporation. Each corporation will base its decision on the least <u>total</u> cost (on a net present value basis) for complying with pollution control requirements and the most efficient use of available capital. The decision will depend on interest charges associated with borrowing money, expectations concerning future interest rates, plans for future production targets, and alternative investment opportunities.

Even if ICR were put into place now, there is no way for the agency to predict accurately how much revenue would be collected over the 30 year recovery period. Many corporations could decide to use municipal facilities while interest rates on the corporate money and bond markets are high. (The current prime rate

on money markets is about 18.7 percent. Major bond offerings are being withdrawn because of long term interest charges as high as 14 percent. Many firms could decide to use municipal facilities until interest rates drop significantly; the absence of contractual requirements enables them to withdraw from a municipal facility at any time with no obligation to pay for capacity constructed for their use.)

ICR: Financial Burden For Industry?

As illustrated in the preceeding discussion of Congressional intent, one of the major concerns of Congress in enacting ICR was to eliminate the presumed subsidy that Federally assisted treatment works could provide to industrial users. Our examination of the issue concludes that there is indeed a subsidy to industrial users. While perhaps not universally true, the subsidy is especially associated with small or economically marginal industries which have difficulty with capital formation.

Industry has represented that the collective costs imposed by ICR, user charges, and yet-to-be-established pretreatment requirements are high, and in many instances exceed what it would cost to construct and operate self-treatment facilities.

In some instances it may cost industry less to construct and operate self-treatment facilities than it would cost to use a municipal treatment system. Each case, however, must be judged individually after reviewing the POTW being considered and each individual corporation's cash flow, investment potential, production facility, location, waste stream, direct discharge requirements, and future investment program.

Coopers & Lybrand, the agency's ICR contractor, found that ICR alone adds only about 15 percent to the average industrial user's wastewater treatment bill. EPA's contractor concluded the ICR costs are not high, but incrementally impose costs on industry that over 30 years may exceed incremental self-treatment costs, especially when one considers corporate tax rates, depreciation, the investment tax credits, and financial mechanisms related to industrial pollution control investments.

EPA has reviewed recent changes to the tax code, provisions governing use of industrial development bonds, the municipal and corporate bond markets, and Coopers & Lybrand's analysis of corporate self-treatment costs. The agency has concluded that Coopers & Lybrand overstated the availability and significance of these corporate tax and financing mechanisms and understated economic benefits associated with POTW use.

The agency's sewage treatment construction grants program provides industry with an interest-free "loan" for complying with water pollution control requirements. Payments are required over a 30 year period, and industrial users of POTW's are not obligated to repay the "loan" if they stop using the municipal facility. A corporation can declare bankruptcy, relocate, or eventually construct self-treatment facilities without legal or financial obligation to reimburse either the municipal treatment agency or the Federal Government for constructing industrial waste treatment capacity.

EPA agrees that in some instances a corporation can construct and operate its own treatment facilities at less cost than it would incur by use of a municipal treatment facility. This varies a great deal, however, with the

individual industry, the age and treatment demand for specific production facilities, and changes in technology and the cost and need for investment capital. Generally, a corporation will construct treatment facilities designed to remove specific pollutants. Self-owned and operated facilities will be sized and designed to accommodate predictable flows and pollutant concentrations. There will be lower energy and transmission costs for conveying waste to a on-site treatment system. There will be fewer administrative costs and a smaller staff for a simple industrial waste treatment system, depending on the process waste stream. Each case, however, depends on the complexity of the POTW being considered and the treatment demand that will be imposed by industry.

An industry will decide whether to use a municipal treatment system or to construct its own treatment facilities after thoroughly reviewing the net present value of the costs associated with each option. Central to the business decision will be a cost-effectiveness review of the production facility in question (its efficiency) and an analysis of alternative uses for current and future capital. A company will choose the option that costs least on a net present value basis and which at the same time neither impairs its borrowing capacity nor adversely affects its cash flow. If debt capacity or cash flow concerns are paramount, a company will use the municipal facility.

Profits determine corporate success. An efficient corporation is one that gains a competitive edge by minimizing production costs and obtaining the maximum benefit from available production options, capital, and financing. ICR payments (and user charges) are production costs, and so are interest payments, depreciation, and operating costs of a self-treatment facility*. All are normal business expenses charged against gross receipts. Elimination of ICR, however, would significantly lower production costs -- especially at antiquated production facilities -- for users of municipal treatment systems. There would be no corresponding reduction in costs for self-treatment, and inequity would result.

Corporations that own their own treatment systems must borrow construction funds or use internally generated capital to pay for treatment system construction costs. Few corporations can or would use operating capital to construct pollution abatement facilities, and those that can secure funds in the bond market face costs which are not incurred by users of municipal treatment facilities. Currently, the prime rate on corporate money markets is about 18.7 percent. Long term bond issues are averaging 13 percent, while recent industrial development bond rates and the average interest charge of general municipal issues is about 9 percent. Most corporations will pay a higher borrowing rate, provided money is available and investors consider the corporation a good investment risk.

Although costs for constructing self-treatment facilities may be less than costs for constructing equivalent capacity in a municipal treatment system, a comparision is not sound unless the true costs to a corporation for borrowing investment capital are considered. Coopers & Lybrand did not adequately address this point.

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* Principal payments are not deductible. The investment tax credit typically occurs in the first year, although a small firm may find itself carrying the credit forward.

The contractor concluded in those cases where industry finances the major portion of its pollution control investment at a low interest rate, self treatment may be less expensive than POTW use provided treatment requirements for industry are equivalent to municipal secondary treatment requirements. This conclusion is sometimes true, but it can be validated only by plant-by-plant analysis. The agency's sewage treatment construction grants program permits a corporation to "borrow" funds with no obligation to repay, no interest charge, and no liability in its financial statements. These are significant production cost exclusions which would ordinarily be reflected on a firm's books as profit liabilities. A self-treating industrial facility must carry outstanding bond and interest charges against income on its books. The cash liability may decrease the firm's attractiveness to investors. A corporation that has a significant amount of nonproductive debt in relation to income is not always an attractive stock investment opportunity.

Many bond offerings cannot be marketed without tremendous cost to a corporation, and every corporation has limited bonding capacity. A corporation with a large amount of outstanding debts in relation to income is not an attractive investment risk because one year of depressed sales can result in loan liabilities exceeding income. Unless additional short term credit can be secured, the excess obligations can cause insolvency. In some instances a bond offering for pollution control will preclude a future bond offering that could finance asset-related investment in productive capacity because cash flow -- without additional short term loans -- will not appear adequate to investors to meet outstanding bond and loan obligations.

Coopers and Lybrand's analysis of the ICR program assumed low interest charges for corporate long term bond offerings and also unlimited investment capital available to both profitable and marginally profitable firms. The study also assumed that every corporation faced with water pollution control compliance costs is an attractive investment risk, could utilize the full investment tax credit, would obtain considerable financial benefits from depreciation charges against taxable income, and would face few restrictions on use of rapid write-off provisions in the tax code for pollution control investments. One other factor assumed in the contractor's analysis is that all industrial facilities have the option to finance pollution control investments through private offerings or by using industrial development bonds. These are not necessarily valid assumptions.

Precise analysis of the impact of ICR and alternatives available for financing corporately-owned treatment facilities could not be done by the agency's contractor, primarily because industrial users of municipal facilities reviewed during the initial ICR study would not disclose data related to production processes or profits. Even without detailed data on individual firms, however, there are valid conclusions that can be made regarding availability of and use of industrial development bonds, rapid write-off, depreciation, and the investment tax credit.

Changes to the tax code reduced the cash flow burden imposed on corporations that finance pollution control investments, provided funds are available and investors are willing to invest. If funds can be secured at a reasonable interest rate, self-financing of pollution control hardware is an attractive option for corporations that are not concerned about the age of production facilities, discharge requirements, and incurring debt unrelated to plant expansion.

Corporations that self-finance pollution control investments may take an investment tax credit, which results in an income tax reduction. The tax credit is applicable, however, only for investment in "qualified property" as defined by the Internal Revenue Service. Regulations governing the investment tax credit are complex and include a restrictive definition of "qualified property," place limitations on the amount of income tax that may be offset by the tax credit, and place restrictions on carryover of tax credits. Coopers & Lybrand assumed most corporations would obtain a significant (10 percent) tax credit, that all pollution abatement capital costs would be defined as qualified property, and that sufficient income tax liability was incurred so the full tax credit could be taken in the first year the pollution control investment was made. According to the Department of Treasury, roughly 40 percent of industry's pollution control investments would qualify for the full range of investment tax incentives.

Coopers & Lybrand also assumed the maximum benefit to industry for depreciation charges against income tax liability. There are, however, restrictions governing depreciation and rapid write-off for pollution control investments. Generally, rapid write-off is applied to "retrofit" expenditures and cannot be applied to pollution control investment needed for new production facilities. Coopers & Lybrand assumed maximum benefit to industry in its analysis of rapid write-off provisions, although some limitations in the use of depreciation were considered.

One major assumption in Coopers and Lybrand's ICR review that the agency disagrees with is the unlimited availability of industrial development bonds (IDBs). IDBs are commonly used by municipalities to assist a resident industry. These bonds carry a lower interest rate than most corporate offerings because they are tied to the municipality's, and not the benefiting industry's, credit rating. Although interest rates can be significant for a financially distressed municipality, for most, interest charges are several percentage points below the most credit-worthy corporate offerings. Rates are lower because the bonds are issued by a public agency and investors do not pay taxes on bond income.

Although IDBs are commonly used to finance industrial pollution abatement programs, their use is restricted primarily to expenditures for retrofitting older industrial facilities. IDBs cannot be used to finance process-related improvements, and the abatement program to be financed must be certified as necessary. IDB offerings generally must be approved by the residents of a community or by their designated representatives. Every municipality, like all corporations, has limited bonding capacity. It is suspect to conclude, during a period when taxpayers are calling for fiscal constraints, that voters would agree to bond offerings primarily benefiting industry when offerings expected to provide civic improvements such as sewage treatment services and public water supplies are increasingly resisted.

As pointed out earlier, the option to use a municipal sewage treatment system provides industry with the opportunity to divert limited working capital and bonding capacity to plant improvements and expansion. This investment opportunity provides users of municipal treatment systems with an equity advantage over their product-related direct discharge counterparts, and is of itself an advantage subsidized by the Federal Government.

Industry comments indicating that ICR, combined with pretreatment and user charges, collectively impose costs in excess of those paid by process-related self-treaters have merit, but ignore the stream of benefits provided by use of a municipal treatment facility.

Use of a municipal facility is the only option available to marginal firms, which are not attractive investment risks, do not have adequate working capital to construct self-treatment facilities, and in many instances would either be in noncompliance or have to discontinue operations if capacity in a municipal treatment facility was not available. POTW use is also attractive to corporate managers that have not decided whether or not to shut down a production facility that utilizes antiquated production processes.

Users of a municipal facility also have several water pollution control compliance advantages that are not shared by those that construct their own treatment facilities.

The user of a municipal system is not concerned with treatment system malfunctions and liability for National Pollutant Discharge Elimination System (NPDES) permit violations. Industrial users of municipal treatment systems are relieved of the responsibility for training treatment plant operators, developing programs and purchasing facilities for sludge disposal, complying with reporting and discharge monitoring requirements, undertaking NPDES renewal every five years, and modifying treatment programs to reflect future pollution control requirements or stringent water quality standards.

Users of a municipal treatment facility often do pay more in operation and maintenance costs than self-treaters, but it is erroneous to assume there are no salaries, pensions, energy costs, or other administrative costs associated with self-treatment. Nor is it valid to assume industrial participation in a POTW does not increase POTW operating costs and manpower requirements above what would be required to service residential users.

Self-treatment requires land for constructing a pollution abatement system, and the industrial facility must be located near a waterway that can accept a waste discharge without showing water quality deterioration.

A corporation constructing self-treatment facilities must negotiate terms and conditions for a NPDES permit, or hire counsel to negotiate with environmental agencies after consultation with an in-house engineer or corporate consultant.

A self-treating industrial facility also faces enforcement liability amounting to $10,000 per day for violations of NPDES permit effluent limitations. Regular monitoring and compliance reports must be completed and filed with state environmental agencies or with EPA. In some instances there are local permit and reporting requirements.

Although in the future there will be pretreatment requirements imposed on industrial users of municipal treatment systems that discharge toxic wastes, there are now restrictions on discharges of toxic materials that must be met by self-treating industrial facilities. A direct discharger also must provide for safe disposal of process sludges in accordance with provisions in the Resource Conservation and Recovery Act (RCRA). RCRA includes its own permit, monitoring, and reporting requirements, and they are coordinated with provisions in the Safe Drinking Water Act to assure waste is disposed of properly and will not contaminate groundwater supplies. A direct discharger that incinerates instead of employing land disposal for sludges must comply with the Clean Air Act and applicable state implementation plans. In nonattainment areas it is difficult to obtain a permit for incineration unless emission offsets can be secured.

The cumulative burden posed by compliance with all environmental regulations is substantial for a direct discharge facility and requires a great deal of corporate financial, legal, and engineering resources. A user of a municipal treatment system, however, currently must pay ICR charges which are calculated upon only that portion of a treatment system actually used by industry and constructed or upgraded through EPA's construction grants program. An industrial user of a municipal system does pay user charges, but they are calculated based on the industrial discharger's proportionate share of costs for operating the POTW. Often user charges are increased for all users of a POTW because of industrial participation, especially in the case of a seasonal industry or a high volume water user. Industrial participation often requires the selection of treatment technologies uneconomic for some communities. Moreover, capacity provided for seasonal users tends to increase fixed system costs which are paid by all users year-round.

Industrial users of municipal treatment systems do have to comply with future pretreatment requirements. Pretreatment requirements for specific industrial categories have not yet been fully established by the agency, and there is uncertainty concerning some of the removal requirements that will be established. In instances where a municipality demonstrates its POTW effectively prevents toxic discharges from industrial users from entering the waterways, pretreatment requirements and costs for industry will not be excessive. There will, however, be increased sludge disposal costs borne by all users and opportunities for beneficial use or sale of sludges will be lost.

Industrial Treatment Needs

Coopers & Lybrand estimated that nationwide industry uses about 15 percent of the treatment capacity funded through EPA's construction grants program. This figure does not represent total, actual industrial use. ICR is required only for that portion of treatment capacity constructed or upgraded by utilization of Federal funds granted under the authority of the Clean Water Act. ICR is not required from any industrial user discharging 25,000 gallons per day or less of equivalent sanitary wastes. The flow exemption is very broad. Industry, in practice, is not charged for waste discharged from in-plant sanitary facilities. Grantees discount 100 gallons per day, the residential user flow design standard, from industry's total waste flow for each employee. Some grantees also provide industry with a credit for the first 25,000 gallons of process waste discharged to the municipal facilities, and charge ICR only on that portion of flow in excess of 25,000 gallons per day.

Flow by itself is not the most significant measure of how process waste imposes demands on municipal treatment facilities. Conventional treatment systems are designed for volume of flow, biochemical oxygen demand (BOD), and suspended solids (SS) loadings. A plant reaches capacity when loadings for any individual pollutant reach design limits. Treatment systems are designed, and technologies are selected, based on maximum flow and maximum loadings for each pollutant parameter. An overload on any treatment process will affect system performance and compliance with NPDES requirements. Generally, plant design assumes each individual residential user contributes 100 gallons per day flow, 0.17 pounds per day BOD and 0.17 pounds per day SS. Pollutant loadings from industry can be significantly higher. For example, discharges from a meat packing house processing cattle that average 1100 pounds live weight per head will require special design considerations in order to avoid a treatment system overload. Wastes from such a firm average, for example, 880 gallons per head flow (equivalent to nearly 9 residential users), 8.8 pounds per head BOD (equivalent to 52 people), and 8.8 pounds SS per head (equivalent to 52 people). The flow exemption discussed above excludes industries from ICR requirements that discharge wastes equivalent to the treatment demand imposed on a municipal system by 250 residential users.

EPA looked closely at ICR in EPA's Region V, which includes Ohio, Michigan, Illinois, Indiana, Wisconsin and Minnesota. There are large, small, and varied categories of industry. The agency's review was undertaken to determine how loadings are portioned among residential and industrial POTW users. The agency also wanted to determine how much ICR revenue would be generated and whether industrial participation necessitates selection of mechanical as opposed to passive treatment technologies. The following series of tables illustrates the estimated amount of ICR revenues returned to the Federal Government from the 6 states in Region V. Total estimated ICR collections would be double the amount indicated, assuming there is no additional industrial participation. ICR collections would be less if some industries decide to withdraw from the systems reviewed. Congress should note that these figures are not based on all grantees within the region subject to ICR requirements. These figures were obtained by reviewing approved ICR systems. Many grantees have not submitted their ICR systems for review. Also, the data shown do not reflect future industrial participation as treatment systems now being planned or under construction come on line. The information shown is based on letters of intent from industry to participate in municipal treatment systems.

TABLE 1 - REGION V

State	Annual ICR Dollars Returned To U.S. Treasury	Design			Industrial					
		MGD	Thousand Pounds BOD	Thousand Pounds SS	MGD	%	Thousand Pounds BOD	%	Thousand Pounds SS	%
Illinois	461,815	655,352	657,107	890,916	79,621	12.2	189,993	28.9	383,135	43.0
Indiana	659,703	425	728	779	54	12.6	205	28.2	185	23.7
Michigan	465,477	1,404	2,264	2,801	196	14.0	377	16.6	390	13.9
Minnesota	496,919	104	252	190	24	23.3	113	44.7	55	28.7
Ohio	589,968	561	1,076	1,157	61	10.8	285	26.4	201	17.3
Wisconsin	368,963	166	263	276	16	9.8	48	18.0	28	10.3
TOTAL	3,042,845	658,012	661,196	896,119	79,972	26.3	191,021	28.9	383,994	42.9

TABLE 2 - ILLINOIS

Grantee	Annual ICR Dollars Returned To U.S. Treasury	Design			Industrial					
		MGD	Thousand Pounds BOD	Thousand Pounds SS	MGD	%	Thousand Pounds BOD	%	Thousand Pounds SS	%
Chicago MSD	308,481	655,175	656,770	890,600	79,606	12	189,960	29	383,104	43
Sycamore	14,828	1.50	2.51	3.21	0.90	60	0.84	34	1.02	32
Belleville	5,800	8.00	18.40	16.70	1.00	12	5.99	33	3.49	21
Milledgeville	1,425	0.24	1.00	1.34	0.04	17	0.79	79	0.48	36

TABLE 3 - INDIANA

Grantee	Annual ICR Dollars Returned To U.S. Treasury	Design			Industrial					
		MGD	Thousand Pounds BOD	Thousand Pounds SS	MGD	%	Thousand Pounds BOD	%	Thousand Pounds SS	%
Indianapolis	311,275	162	473	414	24	15	160	34	126	30
Gary	115,500	60	100	125	6	10	20	20	13	10
Tipton	6,312	2.00	0.25	0.25	0.16	8	0.16	66	0.14	55
Fremont	3,778	0.30	0.62	0.70	0.04	13	0.23	36	0.25	36

TABLE 4 - MICHIGAN

Grantee	Annual ICR Dollars Returned To U.S. Treasury	Design			Industrial					
		MGD	Thousand Pounds BOD	Thousand Pounds SS	MGD	%	Thousand Pounds BOD	%	Thousand Pounds SS	%
Detroit	57,920	1,050	1,752	2,191	128	12	267	15	239	11
Kalamazoo	50,019	53	169	138	19	36	58	34	46	33
Eaton Rapids	7,944	0.84	2.00	1.57	0.17	21	0.79	40	0.35	22
Cadillac	4,105	2.00	3.34	4.17	0.49	24	0.76	23	0.88	21

TABLE 5 - MINNESOTA

Grantee	Annual ICR Dollars Returned To U.S. Treasury	Design			Industrial					
		MGD	Thousand Pounds BOD	Thousand Pounds SS	MGD	%	Thousand Pounds BOD	%	Thousand Pounds SS	%
Western Lake Superior	576,857	44.00	97.70	61.90	14.72	34	63.19	65	24.38	39
Albert Lea	266,480	12.50	21.66	28.96	3.08	25	11.67	54	12.88	44
Moorhead	92,805	6.00	25.04	8.76	1.68	28	14.88	59	1.87	21
Dover-Eota-St. Charles	6,853	0.80	2.26	1.34	0.12	15	0.52	23	0.33	24

TABLE 6 - OHIO

Grantee	Annual ICR Dollars Returned To U.S. Treasury	Design			Industrial					
		MGD	Thousand Pounds BOD	Thousand Pounds SS	MGD	%	Thousand Pounds BOD	%	Thousand Pounds SS	%
Hamilton County	169,500	180	370	447	29	16	143	39	108	24
Salon	134,700	3.60	7.00	6.00	1.06	29	4.35	62	1.65	28
Canton	53,179	33.00	82.50	82.50	4.60	14	22.73	28	12.51	15
Covington	11,716	0.75	3.64	1.94	0.18	24	1.49	41	0.76	39

TABLE 7 - WISCONSIN

Grantee	Annual ICR Dollars Returned To U.S. Treasury	Design			Industrial					
		MGD	Thousand Pounds BOD	Thousand Pounds SS	MGD	%	Thousand Pounds BOD	%	Thousand Pounds SS	%
Manitowac	38,769	15.50	37.50	28.40	2.92	19	10.42	28	3.15	11
Black Creek	13,897	0.34	2.10	1.57	0.07	20	1.44	69	0.75	48
Watertown	9,800	4.20	5.64	4.80	0.42	10	1.58	28	0.46	10

The figures in Table 1 are based on a review of approved ICR programs for 39 grantees in Illinois, 32 grantees in Indiana, 31 grantees in Michigan, 11 grantees in Minnesota, 27 grantees in Ohio, and 32 grantees in Wisconsin (a total of 172 ICR programs). Total return to the Federal Government is estimated to be $2,734,364 annually for 30 years if the ICR moratorium is lifted.

The statewide aggregations show Minnesota alone has a fairly large proportion (23.3 percent) of industrial flow, but industrial requirements for other specific pollutant measures is significantly high in Minnesota and in the other Region V states.

The tables show that industrial process waste does place treatment demands on municipal treatment systems. The type of demand cannot be generalized, however, because each individual industrial process waste stream is different and causes stress on different components within a treatment system. One generalization that can be made is that industrial process waste imposes a significant demand on a municipal treatment system being constructed with Clean Water Act funds, and the fact that an industrial discharger intends to use a municipal treatment system requires special design considerations and treatment system operation and maintenance programs that would not be required in systems designed only for domestic use.

As mentioned earlier, in many instances the presence of an industrial discharger requires the selection of treatment technologies and construction of conveyance systems that would not otherwise be used because they are considered too expensive or unnecessary for a treatment system designed only for residential users. The following examples illustrate this point.

The City of Osceola, Iowa in 1972 completed construction on a Federally assisted sewage treatment project. The city built a simple, non-aerated lagoon consisting of two ten-acre treatment cells. The project was designed to serve residential users and was intended to complement an existing single stage trickling filter plant. The lagoon, which cost the Federal Government $363,000, had a design life of twenty years. A lagoon system is a nonmechanical treatment process that requires minimal operation and maintenance.

EPA in 1972 conducted a final "close-out" inspection of the lagoon system. At that time city officials informed agency inspectors that Jimmy Dean Pure Pork Sausage was starting to build a local processing plant. The city asked for a new construction grant. The desire to treat Jimmy Dean Pure Pork Sausage's waste meant Osceola's new treatment system was underdesigned because it was not originally intended to accommodate process loadings from a major meat processing facility.

The city, as an interim measure, installed surface aerators in the lagoon until a new plant could be built. The city in 1975 obtained a $2,200,350 EPA grant to build a new two-stage trickling filter plant designed for 1.31 million gallons per day flow and 4308 pounds per day BOD. Although the residential design population is 3600 (residential BOD loading equals 612 pounds per day), treatment components had to be designed and constructed to accommodate Jimmy Dean Pure Pork Sausage's BOD loadings and flow. In this case the BOD loadings required a system design that would, comparatively, accommodate the treatment requirements imposed by 25,341 residential users. The BOD demand from an industrial user in Osceola, Iowa required the city to construct a higher priced, more complex and energy intensive treatment system than would otherwise have been the case. Higher fixed operating costs associated with the mechnanical treatment process would be shared by all users.

Special design considerations to accomodate industrial flows are not uncommon, especially in rural areas, in areas where industry is not located near the municipal facility, or if industry intends to locate in a small community. Often small communities can use lagoon systems, which are not expensive to construct and usually require little operation and maintenance. As in the case of Osceola, the presence of a significant, year-round industrial facility often requires that a small community utilize and share costs for a mechanical treatment system instead of a lagoon. Likewise, more costly design and operation considerations often are required if a significant seasonal user intends to use the municipal treatment system.

Gibbon, Nebraska recently built a rotating biological surface treatment system instead of a lagoon to accommodate its 2200 residents and two industries, Nebraska Turkey Growers Association and Gibbon Packing Company. Total design parameters for the treatment system are 1.14 million gallons per day (MGD) flow, 5875 pounds per day BOD, and 4840 pounds per day SS. The system is currently designed for a residential population of 2200, but treatment capacity allocated to the two industrial users--0.77 MGD flow, 5100 pounds per day BOD, and 3900 pounds per day SS--constitutes roughly 75 percent of the system's capacity, or a treatment demand (BOD equivalent) equal to that required for 30,000 residential users. Nebraska Turkey Growers uses the system only six months each year, but if adequate capacity had not been provided for the industry's waste, overloads would result and the city would be liable for enforcement action. Nebraska Turkey Growers alone required design capacities of 0.40 MGD, 1512 pounds per day BOD, and 1200 pounds per day SS. Without the industrial demand, a system adequate to serve Gibbon's residents alone probably would be a 42 acre nondischarging lagoon, which would have cost the Federal Government far less than the $1,903,000 grant EPA awarded to Gibbon.

The examples above are used to illustrate the fact that some communities go to considerable expense to provide treatment capacity for industrial use, and in many instances more sophisticated and costly systems must be selected by a municipality because it will have a significant industrial discharger. Congress, in advancing the concept of regionalized sewage treatment services, accepted the fact that encouraging industrial use of municipal treatment facilities would impose additional financial obligations on both the Federal Treasury and on local budgets. Congress considered the additional costs, but reasoned that economies of scale associated with providing sewage treatment services, and reduced monitoring requirements associated with having fewer self-treating industrial facilities, justified providing treatment capacity for industry because total costs to the economy would be less than would be the case if each industrial and municipal discharger constructed individual treatment systems.

There are also other reasons for permitting industrial use of municipal treatment facilities. Industry does pay income taxes and is entitled to benefits provided by Federal, state, and local governments. Industry also provides employment and, to some degree, financial stability for a community. For these reasons Congress agreed to finance industrial participation in the Federal sewage treatment construction grants program, but Congress expected industry to repay the Federal Government for sewage treatment "loans" in addition to paying their proportionate share of ongoing operation and maintenance expenses.

Although Congress expected industry would continue to use treatment capacity funded through the agency's sewage treatment construction grants program, in some instances industry decides to construct self-treatment facilities or relocate to a community that has a treatment system which has not been constructed or improved with funds authorized by the Clean Water Act. Treatment systems funded locally or through programs other than EPA's sewage treatment construction grants program are not required to impose ICR requirements or establish proportional user charge systems.

As mentioned before, ICR imposes no contractual obligation on industry to remain in a municipal treatment system. Industry can, at any time, withdraw from a municipal treatment system without legal or financial obligation to repay either the local community (unless a local contract is in effect) or EPA costs associated with constructing capacity for the vacating industry's use. After a significant industrial facility leaves a municipal treatment system, new excess capacity often requires different and sometimes costly operating procedures if the plant is to remain in compliance with its NPDES permit. These increased operational costs must be absorbed by the local community, which no longer receives industrial user charges, debt payments for local bond issues, or the discontinued ICR payments.

Industrial withdrawal from municipal treatment systems is not uncommon. Changes in corporate borrowing interest rates, production processes, treatment requirements, user charges, business conditions, the availability of less costly municipal treatment services, or any number of other variables can and do trigger industrial decisions to discontinue using a municipal system subject to ICR requirements. Often industrial withdrawal imposes financial hardship on a community, especially small communities that, for a variety of reasons, built treatment systems that included a significant amount of capacity for industrial use.

The City of Anderson, Missouri is one example of a small community now using an oversized and overdesigned treatment system that, when planned, was expected to serve one significant industrial discharger. Until 1974 the City of Anderson operated a simple, 23 acre non-aerated lagoon system. The city's sole industry, J & J Poultry, a turkey processor, had additional treatment needs and the city decided to construct facilities which would remove grease and feathers from the poultry company's waste. Anderson initiated a $658,000 project and commenced construction on a 2.7 acre aerated lagoon. The new lagoon system would have six 15-horsepower surface aerators and chlorination facilities. It would be used in conjunction with the existing lagoon and provide "pretreatment" for the poultry company's waste, effectively removing grease and feathers.

After construction was completed Anderson had a mechanical system in place which would treat its residential waste (0.090 MGD flow and 223 pounds BOD per day) and J & J Poultry's waste (0.35 MGD and 4146 pounds BOD per day). The total design loading for the system is 0.62 MGD, 4200 pounds BOD per day, and 2068 pounds SS per day. The system is on line now, but shortly after start-up J & J Poultry withdrew and moved to another location, leaving the city with overdesigned facilities and a financial obligation, but no users other than those adequately served by the city's original treatment system. The city would have continued using its original treatment system without modification, but now it must daily operate the new system to keep the mechanical aerators in functioning order.

ICR: Administrative Burden For Grantees?

In establishing the construction grants program, Congress outlined requirements for municipal financing of sewage treatment system operation and maintenance costs. Congress provided municipalities with wide latitude in determining how user charges are developed, but said proportional costs should be assessed to each user that reflect the treatment demand the user's discharge imposes on the treatment system.

Grantees were selected to administer the ICR system as they would be responsible for on-going operation of newly constructed treatment facilities. Congress provided that grantees could keep half of the ICR revenues collected, and funds retained could be used to defray ICR administrative costs and assist in funding treatment system improvements. In 1977 Congress did not significantly change the ICR program requirements.

ICR collections returned to the Treasury so far amount to $559,536. EPA estimates that about $500,000 in additional pre-moratorium ICR revenues will be returned to the Treasury by grantees, and an additional $500,000 will be returned from those grantees collecting during the moratorium. Future ICR collections cannot accurately be estimated while the moratorium is in place because the extent of industrial POTW use is uncertain.

EPA's contractor concluded that industry (as currently defined) uses about 15 percent of municipal treatment capacity. This conclusion is based on an analysis of flow loadings, and does not attempt to measure impact of pollutant loadings on individual treatment system components. If one applies this percentage to the total estimated treatment needs as calculated in the 1978 Needs Survey -- $106 billion -- a simple extrapolation puts industry's share of unfunded needs in excess of $15 billion. Although this figure is an exaggeration it does illustrate the magnitude of industrial demand on the Federal sewage treatment construction grants program. Moreover, in the absence of ICR requirements, it is probably fair to assume that industrial use of municipal treatment systems will progressively increase.

All grantees are required to develop ICR, user charge systems, and sewer use ordinances. In some instances, grantees are required to develop pretreatment programs. EPA provides grant assistance for developing ICR, sewer use ordinances, user charge systems, and pretreatment programs. Data on industrial waste streams that must be gathered by a grantee to satisfy each of the above requirements is also needed to properly design a municipal sewage treatment system, and information gathered by a grantee to satisfy any one of the above program requirements should be utilized to satisfy the other requirements. In a properly designed grants management system there should be little incremental cost for ICR data compilation.

The major burden faced by a grantee in developing ICR, user charge, sewer use ordinances, and pretreatment programs is identifying industrial dischargers and determining their treatment needs. Identifying which industrial facilities actually will use a POTW can be difficult because industry often is unwilling to make a commitment to use a POTW until all

costs to industry are identified. In most cases firm cost data are unavailable until construction of the municipal facility is completed. In many instances, actual costs to industry may be more than initial estimates, due to inflation which occurs during design and construction. In some cases uncertainty associated with industrial treatment needs causes grantees to over-design as a hedge against future discharge violations.

Once industrial users are identified, treatment needs must be determined based on pollutant loadings. Industry's pollutant loading must be determined for both ICR and user charges, and a characterization of industry's waste stream is needed to assure compliance with a grantee's sewer use ordinance and pretreatment program. Gathering data on industrial waste stream characteristics is a difficult undertaking for most grantees. The grantees must discuss production plans, pollutant loadings, and special treatment needs with corporate plant managers. Much of this information historically has been considered privileged by industry.

The pollutant loading and flow information required to develop an ICR system should be collected by a grantee regardless of whether ICR is continued or abolished. Information on industrial discharges is essential for proper plant design and operation, and to determine if toxic pollutant discharges will require special sludge disposal programs. The only incremental cost to a grantee for developing an ICR system is calculating industry's ICR payment. This is, however, a relatively simple process that requires determining industry's share of the Federal sewage treatment construction grant made to a grantee, based on industry's treatment demand for individual treatment processes.

Intensive monitoring is not required for ICR. ICR, user charges, most sewer use ordinances, and pretreatment programs, all include similar monitoring requirements. Monitoring is not conducted separately to satisfy each of the program requirements, and a monitoring program is necessary to calculate user charge rates annually.

Once in place, the annual cost to a grantee for administering ICR should be negligible. The ICR charge itself for each industrial user is established when the treatment system comes on line, and the major yearly costs incurred by a grantee are for billing, collections, and account maintenance. Some grantees have efficient, computerized billing systems that dispatch bills for user charges and ICR simultaneously. There is little incremental cost for including the ICR element on bills sent to industry. Other grantees continue to employ manual billing systems. In a manual system there is little incremental cost associated with ICR, but the system itself may be very expensive for a large grantee to operate due to manpower requirements. Costs to the grantee will rise roughly in line with inflation, while ICR revenues, which do not include an interest charge or inflation adjustment, remain constant.

Management of ICR revenues has been identified as a major incremental cost by some grantees. The Bergen County (New Jersey) Utilities Authority, for example, estimates about $3,000 is required yearly to administer ICR accounts and have ICR revenues managed by a private investment management firm. Bergen

County estimates that costs incurred by the utilities authority for managing the ICR program will increase in line with inflation, and eventually costs for ICR account management and for billing 72 industrial users quarterly will exceed ICR revenues retained by the grantee. The authority estimates ICR will cost $22,700 to administer when its treatment system is completed. At that time the grantee will collect $106,000 and retain $53,000. The grantee said that assuming an eight percent inflation rate, expenses will exceed revenues by the year 2003, and the net accumulated deficit at the end of the recovery period will be more than $964,000.

EPA is at this time unable to verify Bergen County's administrative cost estimates. Some grantees, however, recalculate ICR charges yearly to reflect actual flow sent by an industrial user to the treatment facility. This practice is not required by EPA. In all cases where contractual agreements do not exist, we require adjustments only for substantial changes. Congress specified ICR charges should be modified only when industrial users adopt permanent process changes that reduce flows or pollutant loadings sent to a POTW.

Although ICR requirements are uniform, grantees employ a variety of techniques in administering their treatment system financing programs. Segregation of costs attributable to ICR alone could not be accomplished by Coopers & Lybrand. The agency's contractor was unable to determine which costs in a grantee's revenue system were associated solely with ICR, and found in many instances that ICR and user charge administrative costs are shared.

Following is a listing of various grantees with approved ICR systems. The examples presented show a variety of grantees, all of which have different industrial waste loadings. ICR is useful for some grantees, while others consider the recovery requirements unnecessary. Also included is a sample breakdown of ICR administrative costs.

Incremental Annual Cost of Administering ICR

1. No cost for industry monitoring (covered under user charge system)

2. Fixed costs (regardless of number of industrial users):

a.	System accounting (allocation of revenues, bookkeeping, investment management, disbursement to U.S. Treasury and to projects approved by the Regional Administrator, calculation of incremental costs)	$2,700
b.	Bank custodian fees	300
c.	Annual audit	600
		$3,600

3. Variable cost (per industrial user):

a.	Extraction of data from user charge data base, and calculation of annual ICR charge	$ 25
b.	System accounting (accounts receivable, receipt and logging of payments, and follow-up on late payments)	$ 50
c.	Records maintenance	$ 25
		$ 100

4. Additional cost per industrial user if manual (rather than computerized) system is used $ 100

Efficiency of ICR Revenue Systems

Name of Grantee	Incremental ICR Expenses	Number of Industrial Users	Average Flow per Industrial User
Western Lake Superior, MN	0.5%	22	0.67 MGD
Albert Lea, MN	1.0%	8	0.38 MGD
Sacramento, CA	1.3%	40	0.31 MGD
Templeton, MA	1.5%	1	2.51 MGD
Passaic Valley, NJ	1.5%	400	0.18 MGD
Fall River, MA	5.0%	27	0.12 MGD
Rockford, IL	8%	110	0.20 MGD
Bergen County, NJ	21%	72	0.07 MGD
Ellsworth, WI	53%	1	0.12 MGD
Los Banos, CA	92%	2	0.07 MGD
Viroque, WI	108%	1	0.015 MGD

The "average" figures for ICR systems mask a wide range of specific ICR situations which confront various grantees. The following eleven grantees have been selected as examples of these various situations.

A. High-efficiency revenue systems (incremental cost of collection is less than 2% of ICR revenues):

1. Templeton, MA - a 3 MGD plant with one industrial user which contributes 89% of the design flow, 98% of the design BOD loading, and 99% of the design SS loading.

2. Passaic Valley Sewerage Commission, NJ - a 300 MGD plant, currently under construction, with 400 industrial users which will contribute 24% of the design flow, 60% of the design BOD loading, and 60% of the design SS loading.

3. Albert Lea, MN - a 12 MGD plant with eight industrial users which contribute 25% of the design flow, 54% of the design BOD loading, and 44% of the design SS loading.

B. Average-efficiency revenue systems (incremental cost of collection equals 5% to 21% of ICR revenues):

4. Bergen County Utilities Authority, NJ - a 75 MGD plant with 72 industrial users which contribute 7% of the design flow, 13% of the design BOD loading, and 7% of the design SS loading.

5. Rockford, IL - a 60 MGD plant with 110 industrial users which contribute 37% of the design flow, 17% of the design BOD loading, and 9% of the design SS loading.

C. Low-efficiency revenue systems (incremental cost of collection exceeds 50% of ICR revenues):

6. Ellsworth, WI - a 0.7 MGD plant with one industrial user which contributes 18% of the design flow, 27% of the design BOD loading, and none of the design SS loading.

7. Viroque, WI - a 0.5 MGD plant with one industrial user whose high-strength waste contributes 3% of the design flow, 20% of the design BOD loading, and 18% of the design SS loading.

D. Special situations:

8. Fall River, MA - a 31 MGD plant, currently under construction, with 27 industrial users which will contribute 11% of the design flow, 31% of the design BOD loading, and 14% of the design SS loading. When the ICR system is implemented, it is expected to impose a heavy economic burden on a number of old, marginally profitable industrial users.

9. Sacramento, CA - a 136 MGD plant, currently under construction, with 40 industrial users which will contribute 11% of the initial flow. The seasonal nature of the activities of the five large food processors which were expected to use this plant would result in very high ICR rates. This makes self-treatment an attractive alternative, especially for those users which can use a low-cost land treatment system. One user (Libby-McNeil-Libby), constituting 16% of anticipated ICR revenues and 1% of anticipated user charge revenues, has already ceased operation, and the largest user (Campbell Soup), constituting 34% of anticipated ICR revenues and 5% of anticipated user charge revenues, is expected to construct its own land treatment facility prior to the start of operation of the new plant.

10. Los Banos, CA - a 2 MGD plant whose two remaining industrial users contribute 7% of the design flow, 7% of the design BOD loading, and 7% of the design SS loading. The largest industrial user (Beatrice Foods), which had contributed 24% of the design flow, 74% of the design BOD loading, and 44% of the design SS loading, has moved about 20 miles to Gustine, CA, which has an older plant which is not subject to the ICR requirement.

11. Western Lake Superior Sanitary District, MN - a 44 MGD plant whose largest industrial user testified against ICR at recent Congressional hearings. It should be noted that this system is a high-efficiency revenue system, with an incremental cost of collection of about 0.5% of annual ICR revenues.

The high-efficiency ICR systems generate a large amount of revenue in relationship to the incremental cost of collection. Generally, these are grantees whose industrial users have an average flow in excess of 0.25 MGD, although grantees with large revenue bases may fall below this figure and still have a high-efficiency ICR system.

The average-efficiency ICR systems will initially generate a reasonable amount of revenue in relationship to the incremental cost of collection. However, as the incremental cost of collection rises due to inflation, while the ICR revenues remain constant, the efficiency of these systems will gradually decrease, and before the end of the recovery period, the incremental cost of collection will exceed the grantee's 50% share of ICR revenues. Since 50% of ICR revenues must be paid to the U.S. Treasury, the user charge system must be used to finance all incremental costs of collection which exceed the grantee's 50% share of ICR revenues.

The low-efficiency ICR systems will generate no net revenue for the grantee, since even the initial year's incremental expenses will exceed the grantee's share of ICR revenues. As the incremental administrative costs rise due to inflation, the net deficit from the ICR system will increase each year. Again, since 50% of the ICR revenues must be paid to the U.S. Treasury, the user charge system must be used to finance all incremental costs of collection which exceed the grantee's 50% share of ICR revenues.

1. Templeton, Massachusetts

3 MGD advanced waste treatment plant

$8,698,000 Federal grant

30 year recovery period

1 industrial user (Baldwinville Products Company)

Industrial contribution: 2.51 MGD
89% of design flow
98% of design BOD loading
99% of design SS loading

$258,000 annual ICR revenue

$3,800 initial incremental cost of collection

1.5% of revenues used for expenses

2.9% of grantee's share used for expenses

ICR rates: 5.2 cents per 1000 gallons
0.6 cents per pound of BOD
0.3 cents per pound of SS

This grantee is voluntarily continuing to collect ICR payments during the moratorium period.

2. Passaic Valley Sewerage Commission, New Jersey

300 MGD secondary plant, scheduled completion 1981

$394,000,000 Federal grant

30 year recovery period

400 industrial users

Industrial contribution: 72 MGD (0.18 MGD average per user)
24% of design flow
60% of design BOD loading
60% of design SS loading

$2,840,000 annual ICR revenue

$43,600 initial incremental cost of collection

1.5% of revenues used for expenses

3.1% of grantee's share used for expenses

ICR rates: 1.7 cents per 1000 gallons
1.0 cents per pound of BOD
0.1 cents per pound of SS

3. Albert Lea, Minnesota

12 MGD secondary plant

$26,588,400 Federal grant

30 year recovery period

8 industrial users

Industrial contribution: 3.08 MGD (0.38 MGD average per user)
25% of design flow
54% of design BOD loading
44% of design SS loading

$532,960 annual ICR revenue

$5,200 initial incremental cost of collection

1.0% of revenues used for expenses

2.0% of grantee's share used for expenses

ICR rates: 6.4 cents per 1000 gallons
2.4 cents per pound BOD
2.1 cents per pound SS
15.0 cents per pound NH_3-N
19.5 cents minimum total charge per 1000 gallons

4. Bergen County Utilities Authority, New Jersey

75 MGD secondary plant

$8,800,000 initial Federal grant

$44,000,000 subsequent Federal grant

two 30 year recovery periods (second recovery period starts in the fourth year of the first recovery period)

72 industrial users

Industrial contribution: 5.06 MGD (average 0.07 MGD per user)
7% of design flow
13% of design BOD loading
7% of design SS loading

$16,000 initial ICR revenue (increases to $106,000 in the fourth year of the recovery period; decreases to $90,000 after the thirtieth year)

$18,000 initial incremental cost of collection (increases to $22,700 in the fourth year of the recovery period, assuming 8% inflation)

112% of revenues used for expenses in first year
21% of revenues used for expenses in fourth year

225% of grantee's share used for expenses in first year
43% of grantee's share used for expenses in fourth year

ICR rates: 0.3 cents per 1000 gallons (increases to 1.0 in fourth year)
0.1 cents per pound BOD (increases to 0.7 in fourth year)
1.1 cents per pound SS (increases to 4.0 in fourth year)

This is a typical grantee. Its $106,000 annual ICR revenue and $18,000 initial administrative costs are almost exactly equal to the average amounts of $101,000 and $15,000 found by Coopers and Lybrand. At an 8% inflation rate, expenses would exceed total ICR revenues by the year 2003, and the net accumulated deficit at the end of the ICR period would exceed $964,000. At a 10% inflation rate, expenses would exceed total ICR revenues by the year 1998, and the net accumulated deficit at the end of the ICR period would exceed $3,878,000. Of course, regardless of such costs, the U.S. Treasury would receive its 50% share of annual ICR revenues, which in the case of Bergen County would total $3,180,000 over the 33 year recovery period.

At an 8% inflation rate, the incremental cost of collection would exceed the grantee's 50% share by the year 1994, at which time the excess costs would have to be financed through the user charge system. At a 10% inflation rate, incremental costs would exceed the grantee's 50% share by the year 1991.

It also should be noted that expenses will exceed total ICR revenues during the first three years of the recovery period, due to the lower amount being recovered.

5. Rockford, Illinois

60 MGD secondary plant

$33,937,000 Federal grant

two 30 year recovery periods (second recovery period starts in the fourth year of the first recovery period)

110 industrial users

Industrial contribution: 22.2 MGD (0.20 MGD average per user)
37% of design flow
17% of design BOD loading
9% of design SS loading

$1500 initial ICR revenue (increases to $220,000 in the fourth year of the recovery period; decreases to $218,500 after the thirtieth year)

$14,600 initial incremental cost of collection (increases to $18,400 in the fourth year of the recovery period, assuming 8% inflation)

973% of revenues used for expenses in first year
8% of revenues used for expenses in fourth year

1947% of grantee's share used for expenses in first year
17% of grantee's share used for expenses in fourth year

ICR rates: 0.00 cents per 1000 gallons (increases to 4.1 in fourth year)
0.00 cents per pound BOD (increases to 0.2 in fourth year)
0.02 cents per pound SS (increases to 0.9 in fourth year)

While the industrial flow to this plant is substantial, only a small portion of the facility is subject to the ICR requirement during the initial recovery period. As additional Federally assisted facilities go into operation, the ICR revenue will increase substantially.

6. Ellsworth, Wisconsin

0.7 MGD secondary plant

$601,380 Federal grant

30 year recovery period

1 industrial user (a creamery)

Industrial contribution: 0.12 MGD
18% of design flow
27% of design BOD loading
0% of design SS loading

$7,196 annual ICR revenue

$3,800 initial incremental cost of collection

53% of revenues used for expenses

106% of grantee's share used for expenses

ICR rates: 5.8 cents per 1000 gallons
3.6 cents per pound BOD
0.0 cents per pound SS

7. Viroque, Wisconsin

0.5 MGD secondary plant

$859,635 Federal grant

30 year recovery period

1 industrial user (a cheese processor)

Industrial contribution: 0.015 MGD
3% of design flow
20% of design BOD loading
18% of design SS loading

$3,522 annual ICR revenue

$3,800 initial incremental cost of collection

108% of revenues used for expenses

216% of grantee's share used for expenses

ICR rates: 6.5 cents per 1000 gallons
1.7 cents per pound BOD
1.8 cents per pound SS

Although the industrial user discharges only 15,200 GPD, the high strength of the discharge makes it equivalent to over 25,000 GPD of domestic sewage, on the basis of both BOD and SS.

8. Fall River, Massachusetts

31 MGD secondary plant, scheduled completion 1981

$32,057,000 Federal grant

30 year recovery period

27 industrial users

Industrial contribution: 3.34 MGD (0.21 MGD average per user)
11% of design flow
31% of design BOD loading
14% of design SS loading

$180,600 annual ICR revenue

$9,000 initial incremental cost of collection

5.0% of revenues used for expenses

10.0% of grantee's share used for expenses

ICR rates: 4.2 cents per 1000 gallons
1.3 cents per pound BOD
4.3 cents per pound SS

Cost of development of ICR system:

$9,900	Federal grant
1,980	state grant
1,320	local funds
$13,200	

Fall River was selected as an example because many local industries appear to be only marginally profitable, and the imposition of ICR can be expected to have a significant, adverse economic impact. Fall River is an older, industrialized city. Local industries are competing against other areas with lower utility costs, lower taxes and lower transportation costs. Because of the substantial upgrading of wastewater treatment facilities and the change from an ad valorem tax to a proportionate user charge system, perceived wastewater treatment costs will increase significantly. The recurring statement from industries, local government, and trade groups has been that wastewater treatment costs will be the final incremental cost that will force them out of business in the Fall River area, thus seriously harming the local economy.

9. Sacramento Regional County Sanitation District, California

136 MGD secondary plant, scheduled completion 1981

$303,000,000 Federal grant (50% for treatment plant and 50% for interceptors)

30 year recovery period

40 remaining industrial users (one closed; one will self-treat)

Industrial contribution: 12.3 MGD (0.31 MGD average per user)
9% of design flow (was 19%)
31% of design BOD loading (was 51%)
17% of design SS loading (was 35%)

$571,774 annual ICR revenue (was $1,137,000)

$7,600 initial incremental cost of collection

1.3% of revenues used for expenses

2.7% of grantee's share used for expenses

ICR rates: 4.0 cents per 1000 gallons*
1.3 cents per pound BOD*
0.4 cents per pound SS*

This is a regional system which will replace 19 existing treatment plants. After the start of construction, two of the largest potential users reversed their earlier decision to use the new system. The largest potential user, Campbell Soup, which would have contributed 7% of the design flow, 16% of the design BOD loading, and 15% of the design SS loading, has designed its own land treatment system. Campbell Soup has not yet initiated construction of its land treatment system, but is expected to do so unless the ICR requirement is repealed. The fifth largest potential user, Libby-McNeil-Libby, which would have contributed 3% of the design flow, 5% of the design BOD, and 4% of the design SS, has closed its food processing plant. As a result, neither of these potential users will be required to make user charge or ICR payments, despite the fact that $15,540,000 in Federal funds, $2,590,000 in state funds, and $2,590,000 in local funds are being expended to construct the transmission and treatment capacity previously sought by these two potential users. The departure from the system by Campbell Soup is expected to result in a 6% increase in user charge rates for the remaining users, and the closing of Libby-McNeil-Libby is expected to result in a 1% increase.

ICR revenue loss:		
	Campbell Soup	$ 385,000
	Libby-McNeil-Libby	130,000
	Total per year	515,000
	Total during recovery period	$15,540,000

*actual rates will be much higher for seasonal users, since costs are allocated on maximum demand basis

10. Los Banos, California

2 MGD lagoon

$1,498,000 Federal grant

30 year recovery period

2 remaining industrial users (one moved away)

Industrial contribution: 0.14 MGD (average 0.07 per user)
7% of design flow (was 31%)
7% of design BOD loading (was 81%)
7% of design SS loading (was 51%)

$4,338 annual ICR revenue (was $22,523)

$4,000 initial incremental cost of collection

92% of revenues used for expenses
184% of grantee's share used for expenses

ICR rates: 8.2 cents per 1000 gallons*
0.2 cents per pound BOD*
0.4 cents per pound SS*

Cost of development of ICR system:

$3,750	Federal grant
625	state grant
625	local funds
$5,000	

The departure of the largest industrial user, Beatrice Foods, which contributed 24% of the design flow, 74% of the design BOD loading, and 44% of the design SS loading, increased user charge rates for the remaining users by 35%.

ICR revenue loss:

Beatrice Foods	$ 18,185
Total per year	18,185
Total during recovery period	$595,550

*actual rates will be much higher for seasonal users, since costs are allocated on maximum demand basis

11. Western Lake Superior Sanitary District, Minnesota

44 MGD secondary plant

$79,900,000 Federal grant

30 year recovery period

22 industrial users

Industrial contribution: 14.7 MGD (0.67 MGD average per user)
34% of design flow
65% of design BOD loading
39% of design SS loading

$1,153,714 annual ICR revenue

$5,800 initial incremental cost of collection

0.5% of revenues used for expenses

1.0% of grantee's share used for expenses

ICR rates: 8.2 cents per 1000 gallons
2.3 cents per pound BOD
1.3 cents per pound SS

This is a totally new regional system. The largest industrial user, Potlatch, which contributes 30% of the design flow, 43% of the design BOD loading, and 32% of the design SS loading, is located 25 miles from the treatment plant. The combination of a totally new system and a 25 mile force main results in an unusually high ICR rate structure. For its 13 MGD of wastewater, Potlatch annually pays about $2 million in user charges and about $0.1 million in local debt service, and would pay about $1 million in ICR charges. Thus, while Coopers and Lybrand found that the average industrial user's ICR payment would equal 10-15% of the total cost of wastewater treatment services, Potlatch's ICR payment would exceed 30% of its total cost of wastewater treatment services, or more than double the nationwide average found by Coopers and Lybrand.

ICR revenues to most grantees can provide a significant supplemental fund for treatment system improvements. The income can be used to replace treatment components as they age, and retained ICR revenues can be used to replace system components that unexpectedly break down.

Treatment system maintenance is a major expense for grantees, but one which historically has been neglected. Where industrial flows constitute a significant contribution to the municipal treatment system, treatment system deterioration may be accelerated. Unless a grantee has an aggressive and well-financed program for replacing deteriorating equipment there eventually will be treatment system malfunctions and water quality violations. Currently, about 70 percent of the existing municipal treatment systems are not performing properly. Some of these systems need construction grant assistance, but in many cases poor operation, maintenance, and replacement programs are the cause of inadequate performance.

Faced with this specter of failing systems, the agency is increasingly concerned that the Federal Goverment will be faced with an increasing level of expectation from grantees for financial assistance for facility replacements and upgradings. The availability of dedicated ICR revenues could, in many communities, help ameliorate this problem. The prospect of a growing expectation for Federal funding assistance is not without precedence in the area of Federally assisted public works enterprises.

Congress need only look at the Federal highway program for comparison. The highway program is similar to the sewage treatment construction grants program. Both provided Federal grant assistance to construct essential public facilities. Once constructed, state or local governments assume responsibility for ongoing operation, maintenance, and major rehabilitation or improvements.

Although both programs started with similar objectives, the Department of Transportation now is finding there are new demands on the Federal Highway Trust Fund. The trust fund, which provides the Federal share of highway construction, is financed by a tax on gasoline. The gasoline tax advanced the concept of proportional user charges. Gasoline users needed highways, which justified the tax on gasoline as the basis for the trust fund. The trust fund would be used to build highways that benefitted gasoline users, and those using the highways frequently consumed more gasoline and therefore paid an increased proportion of taxes into the trust fund.

States and local agencies also rely on a gasoline tax for their share of highway construction matching grants. This revenue system effectively raised income for all levels of government until gasoline prices rose and consumption declined. Now during a period when most new highway construction--the original Federal objective in the highway program--is completed, states and local governments faced with on-going operation and maintenance of Federally constructed roads have declining revenues and are unable to afford road maintenance. State governments are returning to Congress seeking grant assistance for maintenance.

Congress, over the past few years, has approved "emergency legislation" that gives states "second grants" for maintaining roads previously constructed with Federal grants. One Department of Transportation official told EPA recently that if Congress changes the definition of road improvements in the highway program's authorizing legislation to include maintenance programs, the Federal government will face a new multibillion dollar grant liability.

EPA is concerned that if grantees do not develop sound and complete revenue programs, demands will be placed on the sewage treatment construction grants program for "second grants" that will be used to finance the rehabilitation and expansion of treatment systems now being constructed. The agency is concerned that grantees are not now anticipating future capital requirements for upgrading their treatment systems, and generally funds now are not being reserved and managed for treatment system improvements and expansions.

ICR requirements do force grantees to hold revenues generated by their treatment systems, and retained income must be used for treatment system improvements. Although the user charge program includes requirements for retaining income adequate to cover treatment system replacement, the replacement guidelines established by Congress require only that sufficient income be retained to pay for minor equipment replacement. Many grantees currently transfer yearly budget surpluses generated by treatment systems into general revenue accounts. Once transferred, the funds are lost to the municipal treatment agency and are unavailable for treatment system improvements. ICR revenues, unlike user charges, cannot be transferred into general revenue accounts. The revenues returned to a grantee can be managed to offset inflationary losses that are particularly severe because although administrative costs to a grantee may rise over time, an industry's ICR payment is fixed. The industrial user repays the Federal construction cost without interest. Although industry repays with deflated dollars, sound ICR revenue management can provide a grantee with a sizable portion of income needed for future system reconstruction and expansion.

CONCLUSIONS AND RECOMMENDATIONS

Based on our recent evaluation of the ICR provisions and the limited experience with their application, EPA concludes that ICR, if effectively and uniformly applied, will achieve the original intent of the Congress -- partial elimination of a subsidy to industries discharging into POTWs. If, after consideration of this report and the testimony of witnesses from both the industrial sector and the municipal treatment systems, Congress decides to sustain its original objective, then the agency recommends that the present moratorium be allowed to expire on June 30 and that grantees begin collecting ICR revenues from industrial users.

This recommendation is based on several findings and conclusions. First among these is the fact that industrial users of publicly owned and financed treatment systems do, indeed, enjoy a subsidy--as compared to comparable industries which treat and discharge their own wastes. The extent of this subsidy is difficult to quantify and depends on a number of factors such as location, type of discharge, flow and loadings, sophistication of the waste treatment process, etc. Nevertheless, it is fair to assert that indirect dischargers are relieved of the financial burden of raising capital for development and construction of facilities not directly related to their primary function (production); they are relieved of bearing the market cost of money which their counterpart industry has to bear in the financial market -- a difference at this time of over 18 percent in the cost of investment capital for lenders' most credit-worthy customers. By virtue of sharing fixed costs, many plants pay lower management, administrative, and legal costs than they would pay if they built self-treatment facilities; they do not have to directly operate or maintain the treatment system, monitor and report on discharge performance, or acquire and comply with the direct discharge permit limitations.

Another conclusion which the agency believes argues persuasively for the maintenance of a system of dedicated revenues is an increasing apprehension about the financial capacity of municipalities to make necessary operational improvements, facility replacements, expansions, and upgradings in the absence of an earmarked pool of revenues. While ICR is not the total answer to this problem, and while industry should not bear more than its proportionate share of expansion and reconstruction costs, the availability of ICR revenues, which in some areas will be substantial, can provide an effective cushion against future replacement costs and, perhaps just as important, provide the precedent for maintaining a "sinking fund" dedicated for treatment system expansion and improvements.

Currently, some grantees include a charge within their user charge systems for future capital expenditures. Generally, future capital expenditures are defined as treatment system minor equipment replacement and in some cases system expansion. Expansion is one valid consideration in any sound sewage treatment system's financing program. In most instances, however, funds collected and reserved are held for short term (5 year) capital improvement programs. Most municipalities are not doing the long range fiscal planning necessary to avoid future capital shortfalls caused by treatment system malfunctions, NPDES noncompliance, and major system expansion.

A grantee should be applying investment planning techniques in its wastewater treatment program similar to those utilized by industry when it makes long range capital needs projections for investors. Sewage treatment systems should be viewed as businesses that are capable of generating sufficient profit to maintain operations and self-finance expansion.

Most grantee revenue systems now in place, however, are designed only to repay past obligations (local debt service) and pay, on a yearly basis, for actual operation and maintenance expenses. Few grantee revenue systems include a managed account or charge for major system improvements that will be required in the future. A grantee using a systematic enterprise approach to financing its treatment system will consider on-going performance properly. The grantee also will be able to identify needs for debt service on loans used to finance past capital improvements as well as forecast future capital needs for plant expansion and reconstruction. User charges collected to operate the treatment system are identified as well as ICR receipts. Accounts are segregated; funds collected are dedicated; debt and income are managed for specific purposes.

Most grantees are not developing revenue programs that include provisions for forecasting long term capital needs and identify where financing will come from to cover those needs. The absence of this planning component assumes treatment systems now being constructed will always be adequate to satisfy a grantee's needs and will never require major expansion, improvement, or rehabilitation. This is not a valid assumption unless Congress intends to continue providing municipalities with sewage treatment construction grants after all first-round grant needs have been satisfied. Given the magnitude of present unmet needs for basic treatment facilities ($54 billion for just Categories I, II, and IV B), EPA at this time could not support expanding grant eligibility for a new category of sewage facility expansion and reconstruction.

ICR is one component in the local sewage treatment revenue programs that can be relied on for income dedicated exclusively to treatment system improvements. Economic independence for local sewage treatment programs is essential, and the factors which must be considered by municipal agencies include:

1. Expected life of existing facilities and capital expenditures required for future upgrading, expansion, rehabilitation, reconstruction, and/or new construction.

2. Expected future bonding capability.

3. Estimate of funds which will be available when funding is needed:

   a. ICR retained amounts.

   b. Replacement holdovers from user charges and existing bond funds.

   c. Income from general revenues.

   d. Income funds from any other local sources.

4. Projections of how much additional money will be needed considering all of the above factors.

5. Action to ensure that additional money will be available. If the necessary debt capacity is not available, money from other sources earmarked for future capital expenditures should be assessed. Current sources include user charges for debt service and various methods of taxation.

Congress did in 1972 consider requiring grantees to reserve funds for future system replacement as a condition to award of EPA construction grants. The replacement provision was modified, however, to require small reserves adequate to pay for yearly plant maintenance. EPA would support an amendment to the ICR or user charge provision requiring long range treatment system financial planning and the establishment, at the local level, of a sinking fund dedicated to treatment system expansion, replacement, and improvements. Such a fund could be managed by a grantee to eliminate inflationary losses.

If the Congress decides to retain ICR requirements, there are still opportunities for reducing the administrative burden imposed on grantees. The agency proposes that the Congress consider some of the following modifications:

- Currently, industrial users of municipal treatment systems discharging less than 25,000 gallons per day of equivalent sanitary wastes are exempted from ICR requirements. This exemption, established by the 1977 Clean Water Act Amendments, effectively excludes most small industrial facilities from ICR requirements.

  The flow exemption exclusion provides benefits to a number of small firms that in many instances are unable to afford or obtain financing for self-treatment facilities. Many of these firms are "family businesses" in urban areas. A significant number would be considered marginal according to standard profitability indicators and would probably cease operations if required to pay actual costs for sewage treatment capacity.

  Data available to the agency indicates the flow exemption could be increased to 50,000 gallons per day of equivalent sanitary waste without significantly decreasing the total amount of revenues collected by grantees and returned to the Treasury. Available data indicates increasing the flow exemption to 50,000 gallons per day would exclude 83 percent of industry now using municipal treatment systems from ICR requirements while retaining 87 percent of the potential ICR revenues. The major disadvantage of this option is that grantees would have less incentive to inventory industrial users and characterize process waste streams. This information is needed to protect plant performance and sludge.

  Based on a review of ICR systems in EPA Region V, however, increasing the flow exemption could decrease billing and other administrative requirements for grantees without significantly decreasing ICR revenues. Preliminary figures taken from Region V to illustrate various flow exemptions are shown below. The effect of various flow exemptions is shown as applied to Region V industries participating in approved ICR systems. The reductions estimated to occur in Region V are then applied to the anticipated national Federal share of ICR revenues to determine the reduction in ICR revenues returned to the Federal Treasury under various flow exemptions.

Estimated 30-Year Federal Share of ICR Payments

GPD Exclusion	Region V No. of Users (% Reduction)	National Estimate Federal Share (% Reduction)	National Estimate Per Year (1/2 Total ICR Collections)
0	277 (0%)	$ 900 Mil (0%)	$ 30 Mil
2,500	169 (39%)	$ 891 (1%)	$ 30 Mil
5,000	130 (53%)	$ 882 (2%)	$ 29 Mil
10,000	100 (64%)	$ 864 (4%)	$ 29 Mil
20,000	71 (74%)	$ 828 (8%)	$ 28 Mil
25,000	64 (77%)	$ 819 (9%)	$ 27 Mil
50,000	46 (83%)	$ 783 (13%)	$ 26 Mil

The $900 million Federal share of ICR payments is only a rough estimate, based on a cumulative EPA grant amount of $45 billion.

- An additional modification of the ICR program advanced by the agency for consideration is exempting those grantees from ICR program requirements that can satisfactorily demonstrate ICR revenues are not needed in meeting long range obligations for treatment system improvement or rehabilitation. In other words, if a grantee can show its existing funding mechanisms provide for future capital expenditures and ICR insignificantly contributes to the grantee's funding program, ICR would not be required.

  An exempted grantee should be required to demonstrate elimination of ICR will not result in a disproportionate share of current and future treatment system costs being imposed on residential users of the POTW. Moreover, a grantee should show industry will be required to pay its share of treatment system construction costs.

  Industry's total share of postconstruction costs could be retained by the grantee or a portion of the payment could be returned to the Treasury if industry receives significant benefits from the sewage treatment construction grants program. Each case would be judged individually, and at that time a determination could be made regarding whether a grantee should return a portion of the industry payments to the Federal Government. All revenue collected from industry and retained by the grantee should be dedicated to treatment system improvements, some of which would be tailored to industrial treatment needs.

  Data presented to the agency by some grantees indicate that in some instances ICR revenues retained by grantees will not significantly help in meeting future capital requirements for treatment system reconstruction. This is not true in cases where one or a few industrial dischargers use a significant portion of treatment capacity. There are many grantees, especially small grantees, that reserve up to 90 percent of treatment capacity for one or a few industrial users. These

grantees could not afford to operate and maintain a treatment system if the primary industrial user withdrew from the facility, and without a mechanism for recouping construction costs from these users a grantee will be unable to finance system improvements without imposing a significant financial burden on other users. It is the agency's opinion that ICR should be required of any individual industrial user needing capacity amounting to 10 percent or more based on flow, BOD, or SS, even if that user discharges fewer than 50,000 gallons per day (or 25,000 gallons if the exemption is unchanged). Similarly, ICR should be required when any geographically concentrated group of industrial users individually do not exceed the established cost recovery flow exemption but collectively require more than 20 percent of a municipal treatment system's capacity. ICR should be required for major industrial parks and areas where industrial acitivity is concentrated and often in need of specialized treatment services. ICR appears in many cases unnecessary to the financial viability of the treatment system in cases where any one industrial discharger is allocated less than 10 percent of capacity for each system parameter.

- Another option offered by EPA for consideration by Congress is to make ICR a mandatory condition for grantees seeking Federal funds for industrial treatment capacity, but provide grantees with an option which would enable them to avoid ICR requirements in cases where industrial capacity financing is not sought from the Federal Government.

  EPA under this option would award grants adequate for domestic treatment capacity and for industrial users meeting the established 25,000 or 50,000 gallon per day ICR flow exemption. In new treatment system construction the grant amount would be determined based on a model plant designed to serve a specified domestic population. A grantee would be permited to treat industrial wastes, but the grantee and the future industrial users would be required to arrange private financing to raise funds for constructing capacity reserved for industry's use.

  Development of a self-financing program would involve a grantee, industrial users, and the grantee's bond counsel and financial planners in detailed negotiations during which funding mechanisms would be identified and future revenue requirements would be determined. Municipal bonding tied to revenues generated by the treatment system is the most likely source of financing for most grantees. Bond counsel, prior to certifying the municipal offering complies with the Securities and Exchange Commission disclosure requirements, would assure the grantee and industrial users develop a user charge program that would generate revenue sufficient to cover debt payments, operation and maintenance, and future treatment system improvements.

  This option has several advantages not found in the current ICR program. Industrial users and grantees would have an on-going financial interest in the treatment system. Industry, by virtue of its bond obligation, would not withdraw from the treatment system without financial liability. Both the grantee and industry would be concerned with treatment system sizing, performance, management, and rehabilitation.

Another advantage provided by this option is it provides a strong incentive to construct cost-effective treatment processes that are sized and managed according to actual needs and include a minimum of speculative treatment capacity. Industry has no incentive to accurately project its treatment needs under the existing ICR program. Currently, industry estimates its needs but often uses less than is constructed for its use. In such cases ICR is charged only for capacity actually used, and domestic users are required to make debt payments on excess capacity. Requiring industry to share in treatment system financing will encourage proper process selection and sizing of treatment facilities and discourage industrial withdrawal.

In all instances where a grantee and industry decide to utilize Federal financing under conditions established in the ICR program, a shorter recovery period and interest charges should be imposed and industrial users should be required to sign a binding contract guaranteeing their participation and obligation to pay for specified treatment capacity.

Grantees and the Federal Government receive deflated dollars under the existing ICR program. ICR payments are not indexed for inflation and no interest is charged on the "loan" provided to industry. EPA suggests a 5 or 10 year payback period because the time interval is more closely aligned with time frames used by corporate planners and long term financing practices now being considered by the financial community. The interest charge to industry should not exceed the prevailing rate paid on Federal securities.